IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SKYLINE SOFTWARE SYSTEMS, INC.,

        Plaintiff,

    v.

KEYHOLE, INC., and
GOOGLE INC.

        Defendants.

CIVIL ACTION NO. 04-11129 DPW

DECLARATION OF PROFESSOR STEVEN K. FEINER, Ph.D. IN SUPPORT OF DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

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I, Steven K. Feiner, declare as follows:

1.   I know the following information through my own personal knowledge, and if called and sworn as a witness, I could and would competently testify thereto.

2.   I make this declaration in support of the claim construction brief filed by Keyhole, Inc. and Google Inc. (collectively "Defendants") and provide my opinion as to what the claims of United States Patents No. 6,496,189 (the "'189 patent") mean to one of ordinary skill in the relevant art.

3.   My qualifications are stated more fully in my *curriculum vitae*, a true and correct copy of which is attached as Exhibit 1. However, I will provide a brief summary of my relevant qualifications here.

4.   I received a Ph.D. in Computer Science from Brown University in 1987. I received an A.B. degree in music from Brown University in 1973.

5.   I am presently a Professor of Computer Science at Columbia University, a position that I have held for over nineteen years. I have been a Full Professor since January of 2000. Prior to that, I was an Associate Professor of Computer Science at Columbia University from January of 1991 until December of 1999, and an Assistant Professor from September of 1985 to December of 1990. Prior to joining the faculty of Columbia University in September of 1985, I was a Research and Teaching Assistant in the Department of Computer Science at Brown University from September of 1977 until August of 1985.

6.   At Columbia University, I direct the Columbia University Computer Graphics and User Interfaces Laboratory, and teach both graduate and undergraduate students in computer graphics and user interfaces courses. I advise Computer Science doctoral candidates, primarily in the field of computer graphics and user interfaces. I am an active academic researcher, whose areas of research include knowledge-based design of graphics and multimedia, user interfaces, virtual reality and augmented reality, wearable computing, animation, hypermedia, and visualization.

7.   I am a coauthor of *Computer Graphics: Principles and Practice*, Addison-Wesley, 1990 ("*Computer Graphics*"), an authoritative and frequently cited academic computer graphics text. I am also a coauthor of *Introduction to Computer Graphics*, Addison-Wesley, 1993. As indicated on my curriculum vitae, I am the author or a coauthor of over twenty journal papers, over sixty conference papers, and numerous other workshop papers, books and book chapters, editorials and other publications on computer graphics and user interfaces. I have been an Associate Editor of *ACM Transactions on Graphics* and *ACM Transactions on Information Systems*, and have been on the editorial boards of *IEEE Transactions on Visualization and Computer Graphics*, and *Virtual Reality*. I am a frequent invited speaker on computer graphics and user interfaces at institutions such as Princeton University, the Massachusetts Institute of Technology, and Carnegie Mellon University. In 1991, I received an Office of Naval Research Young Investigator Award.

8.   I am a named inventor on an issued United States patent relating to computer graphics entitled "Worlds-within-worlds nested display and interaction system and method" (U.S. patent number 5,524,187).

9.   I have reviewed the '189 patent and its relevant prosecution history and am familiar with this patent, its claims, and the background technology. I understand that Plaintiff accuses Defendants of infringing each and every claim of the '189 patent.

10.   I understand that patent claims should be construed from the perspective of a person of ordinary skill in the relevant art at the time the patent application was filed. In my opinion, the relevant art for the '189 patent is computer graphics. The patent-in-suit uses concepts, nomenclature, designs, and systems from the computer graphics art that should be understood in this context. In my opinion, one of ordinary skill in the art relevant to the subject matter of the '189 patent at the time the application for the patent was filed would be a person with a bachelor's degree in Computer Science including at least one course in computer graphics, or with work experience equivalent to that level of education. In construing the claims of the '189 patent, I considered the '189 patent and its prosecution history from the point of view

of one of ordinary skill in the relevant art. I did not read the claims in light of any specific software product accused of infringing or practicing the '189 patent.

MEANING OF THE TERMS OF THE CLAIMS OF THE '189 PATENT

11.   U.S. Patent No. 6,496,189, entitled "Remote Landscape Display and Pilot Training," relates to methods and apparatus for displaying three-dimensional terrain images on a remote computer, and the use of such methods and apparatus for pilot training.

12.   I understand that Skyline has accused Defendants of infringing each and every one of the 24 claims in the '189 patent. I also understand that Skyline has only provided constructions for claims 1 and 12. I will provide my opinion as to how one of ordinary skill in the art would understand the disputed terms in claims 1 and 12. I also note that many of the terms from claims 1 and 12 whose construction is sought by both parties are also used elsewhere in other claims. My understanding is that such terms should be construed consistently throughout the patent. Additionally, in my opinion, the disputed terms are used consistently throughout the claims and should therefore be given the same constructions throughout the claims.

"data block"

13.   In my opinion, one of ordinary skill in the art would understand "data block" to mean "an image of a terrain area that is composed of pixels, where each data block optionally also contains data associated with the image of the terrain area, such as data describing other objects that overlay the terrain; each data block has one particular resolution."

14.   The specification (e.g., '189 patent, col. 8:15-9:39; Figs. 2 & 3) gives a detailed description of the structure of the "data block" of the invention, specifically referring to the data blocks as "images of terrain" in which the image blocks are preferably subdivided into sub-

blocks. '189 patent, col. 8:15-37. The specification also refers to Figures 2 and 3, showing that a terrain image is "cut" into sub-blocks, each sub-block covering a smaller segment of the overall image. *See also* '189 patent, col. 9:40-10:14. Furthermore, the specification indicates that the data blocks contain an attachment field in which "additional optional data objects associated with the area covered by the sub-block are described." '189 patent, col. 8:38-47. The optional data can include data describing objects, such as buildings or map symbols, that are overlaid on the terrain. '189 patent, col. 8:48-58.

15.   I also note that some of the other dependent claims refer simply to "blocks" but they are clearly referring to data blocks and "blocks" should therefore be given the identical construction as given for "data blocks."

16.   I understand Skyline has proposed that this term be construed to mean "a quantity, set or amount of information or data representing a portion of the terrain." Plaintiff Skyline Software System, Inc.'s Opening Claim Construction Brief ("Skyline Brief"), p. 9. Skyline's construction is not the plain and ordinary meaning of the term "data block," despite their statement that "Skyline's proposed definitions of the disputed claims are entirely consistent … with the plain and ordinary meaning of the terms." Skyline Brief at 9. One of ordinary skill in the art would not limit the plain and ordinary meaning of the term to data "representing a portion of the terrain." Data blocks in the relevant art are not limited to data representing terrain.

17.   In my opinion, Skyline's cited references to the specification do not support their construction. Indeed, Skyline's cited references do not support many of Skyline's positions. For example, Skyline states that data blocks "may consist solely of elevation data. *Id.*, col. 5, lns. 37-38." Skyline Brief at 10. However, the cited portion of the specification states "Preferably, transferring the data blocks includes transferring blocks which include altitude data of the terrain." This does not mean that blocks could "consist solely of elevation data" but rather that some blocks may include elevation data.

"terrain"

18.   The term "terrain" is also used consistently throughout the claims and should therefore be given the same construction throughout. Unlike "data block," there is no indication anywhere in the patent specification that Skyline intended to impart a special meaning to the term "terrain." It is my understanding that the term's plain and ordinary meaning should therefore be adopted.

19.   The plain and ordinary meaning of "terrain" is "the surface features of an area of land; topography." *See* Exhibit 2 attached hereto (THE AMERICAN HERITAGE COLLEGE DICTIONARY 1400 (3rd ed. 1997)). The specification supports this understanding of the plain and ordinary meaning of "terrain." The specification makes liberal use of the term in describing aspects of the prior art and in explaining the patented invention. *See, e.g.,* '189 patent, col. 1:25, 41, 44, 52; col. 2:13, 27; col. 3:5, col. 4:15; col. 5:38, 41, 53, 59; col. 6:55; 8:20. Nowhere in the patent, however, does the patentee provide a specialized meaning for the term "terrain," nor does the context of the specification in whole or in part supply any such meaning.

20.   It is my understanding that Skyline has suggested that the '189 patent does impart a specialized meaning for "terrain," and that "terrain" should be construed to include "other features, such as color attributes and objects." Skyline Brief at 11. However, the portions of the specification to which Skyline cites do not support this construction. Skyline does not properly distinguish between "terrain" and "objects" that may be overlaid on top of the terrain. *See* '189 patent, col. 8:50-58. The terrain is the topography, while the objects are items that can be placed on top of the terrain for various purposes.

"renderer"

21.   In the specification and every single claim of the '189 patent, the renderer, which generates images, is clearly stated to have certain specific additional core properties: it must provide to another object coordinates in the terrain along with an indication of a respective

resolution level and it must receive data blocks from another object.   Claim 1, for example,

recites:

> receiving from the renderer one or more coordinates in the terrain along with indication
>   of a respective resolution level;
> providing the renderer with a first data block which includes data corresponding to the
>   one or more coordinates, from a local memory;

'189 patent, col. 16:32-38.

22.   There is a minimal set of functions that a renderer must perform that is true of

every claim in the patent. The proper construction of "renderer" as defined by the patent and as

it would be understood by one of ordinary skill in the art is "a software and/or hardware object

that performs each of the following steps: (1) determines the coordinates of terrain data required

to create an image and sends the needed coordinates along with a specified resolution level to

another object; (2) receives the data blocks corresponding to the provided coordinates; and (3)

uses the received data blocks to create an image." This construction is supported by the claims

themselves, and by the specification. *See* '189 patent, col. 3:58-60; col. 11:19-30; col. 12:58-

13:2; col. 13:10-17; col. 16:28-44.

23.   The patent describes the three functions of the renderer. The first function, as set

forth in claim 1, entails "receiving from the renderer one or more coordinates in the terrain along

with indication of a respective resolution level." '189 patent, col. 16:32-34. Because of the

grammatical use of the passive voice, some object other than the "renderer" *receives* one or more

coordinates in the terrain and an indication of the resolution level from the renderer (i.e., the

renderer sends this information to the other object). As explained in the specification, "Renderer

72 determines the coordinates of the pixels it needs in order to render the view and requests the

description of these pixels from a cache manager.… Along with each required pixel, block 42,

or sub-block 43, renderer 72 preferably states the resolution level 44 at which the block is

required." *See* '189 patent, col. 11:21-30. Therefore, according to the patent, the renderer

determines the coordinates in the terrain of the data it needs and the resolution level in order to

display the image. The renderer then sends the needed coordinates and resolution level to

another object or process. *Id.*

24.   The renderer's second function, as set forth in claim 1, is to receive data blocks corresponding to the coordinates, insofar as claim 1 is "A method of providing data blocks describing three-dimensional terrain to a renderer," whose steps include "providing the renderer with a first data block which includes data corresponding to the one or more coordinates." '189 patent, col. 16:28-38.

25.   The renderer's third function is using the received data blocks to create an image. '189 patent, col. 3:55-57.

26.   It is my understanding that Skyline has proposed that "renderer" be construed to mean "something that may be implemented entirely in software or may include a dedicated hardware processor along with a software package running on a general purpose processor, which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided." Skyline Brief at 13. This is not how one of ordinary skill in the art would interpret the claim term "renderer." It is my opinion that Skyline's proposed construction is not supported in either the claim language or the specification.

27.   The specification does not support Skyline's proposed construction that the renderer "performs one or more steps of the recited method." Skyline Brief at 13. The renderer does *not* perform these steps; some other object or objects perform the first and second steps of the method, and the renderer merely *provides* data to or *receives* data from the other object or objects that perform these steps.

28.   One of ordinary skill in the art would understand that this claim requires one or more objects separate from the renderer that receive from the renderer terrain coordinates and resolution level; and provide data blocks to the renderer. The specification explains that a "cache manager" performs these roles. *See* '189 patent, col. 3:58-4:9; col. 11:21-30, 39-12:7; Fig. 5.

29.   Furthermore, the renderer does not perform the step of downloading from the remote server. The specification again identifies a "cache manager" as a separate component that performs this role. '189 patent, col. 11:62-63 ("Cache manager 74 downloads from the

server 26 the blocks 42 and/or sub-blocks 43 required by renderer 72."); Fig. 5.

"data blocks belonging to a hierarchical structure"

30.   In my opinion, one of ordinary skill in the art would understand this phrase to mean "data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution, and each successive level contains data blocks of a higher resolution than those in the preceding level."

31.   This construction, having each successive level at a higher resolution than the preceding level, is consistent with the specification, and with how "hierarchies" are arranged generally. The specification provides a thorough explanation of how the data blocks of the invention are to be arranged in a hierarchy. *See, e.g.,* '189 patent, col. 3:3-12; 8:61-9:21; col. 14:28-46; Figs. 2, 3, 9. "Blocks 42 are classified in *successive resolution levels …* according to … the level of detail which they include." '189 patent, col. 8:61-64 (emphasis added). Figure 2 shows four successive levels of data blocks. Blocks of level 1, the lowest level, "cover the largest area per block and therefore have the least detail per area unit." '189 patent, col. 8:64-67. Each block of the next level, level 2, is of higher resolution and covers only one fourth of the area of a level 1 block. In other words, for each block of level 1, there are four blocks in level 2 of higher resolution that together cover the same area. '189 patent, col. 9:7-13. Thus, the blocks in level 4 are of a higher resolution than those in level 3, which in turn are higher than those in level 2, *etc.* (Resolution level: level 4 > level 3 > level 2 > level 1). The specification further clarifies:

> In a similar manner, each successive level 44 comprises blocks 42 which cover a quarter of the area of the blocks 42 of the lower resolution level.
>
> Four blocks 55 of a certain level 44C, which cover the same area as a block 57 of the preceding level 44B, are referred to as descendants of block 57. Conversely, block 57 is referred to herein as the parent of blocks 55. The parent block 59 of block 57 is referred to herein as an "ancestor" of blocks 55, and is said to be of a lower resolution level than its descendants.
>
> '189 patent, col. 9:10-21.

32.   It is my understanding that Skyline has proposed that "data blocks belonging to a hierarchical structure" be construed to mean "data blocks arranged into multiple levels of resolution, wherein each level of the structure contains blocks of a different resolution." Skyline Brief at 12. This construction is unclear, as it can be interpreted in two contradictory fashions. One possible way to read this is that *blocks* in one particular level have different resolutions than other blocks in that same level. Skyline's construction in that event is directly contradicted by the specification, *see* '189 patent, col. 8:61-64, and is at odds with the very concept of a hierarchy, where blocks are classified into levels based on their resolution.

33.   Another way to read Skyline's proposed construction is that each level contains blocks that are of the same resolution as the other blocks in that level, but each level contains data blocks that are simply of a *different* resolution than the blocks of other levels, rather than successively *higher* or *lower* resolution than the preceding level. For example, in an organization consistent with this interpretation, one level may be followed by a level of lower resolution, which is in turn followed by a level of higher resolution, with all three resolutions being different. This interpretation is far too broad and is not supported by the specification or the general concept of a hierarchy. The specification describes a database in which successive levels have successively higher resolution. "Blocks 42 are classified in *successive resolution levels* … according to … the level of detail which they include." '189 patent, col. 8:61-64 (emphasis added); *see also* Figs. 2, 9. Under Skyline's view of a "hierarchy," Figure 2 of the patent could have Level 3 at the highest resolution, Level 2 the next highest, followed by Level 4 and Level 1 respectively, *i.e.*, Level 3 > Level 2 > Level 4 > Level 1. According to Skyline, such a structure would still be considered *hierarchical* because "the resolution from level to level must only be 'different.'" Skyline Brief at 12. Skyline's argument that resolution levels need only be "different" is unsupportable. Skyline's construction would read out the term "hierarchy" from the language of the claim.

34.   It is my understanding that Skyline disagrees with this explanation of the meaning of the phrase as it would be understood by one of ordinary skill in the art because "the

hierarchical structure could equally be described as containing data blocks of *lower* resolution than those in the preceding level." Skyline Brief at 12. A hierarchy, however, can be viewed from the top down or from the bottom up. This does not make this proposed construction "wrong." I have chosen one viewpoint (successively higher) over the other (successively lower) simply because the claim language and the specification consistently describe it that way. *See, e.g.,* '189 patent, claim 1 ("data blocks at a *resolution level higher* than the resolution level of the first block") (emphasis added).

"coordinates in the terrain"

35.   In my opinion, one of ordinary skill in the art would understand "coordinates in the terrain" to mean "a pair of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain." *See* '189 patent, col. 4:15-18. It is my understanding that Skyline has used the phrases "*in* the terrain" and "*of* the terrain" interchangeably in its explanation of this claim phrase. In my opinion this is improper. The plain language of the claims and the specification state that the coordinates are "*in the terrain,*" not "of the terrain."

36.   The specification further supports this construction. For example, the images of terrain needed to display a particular viewpoint are requested "using their (x,y) coordinates" or the "coordinates of the boundaries of the necessary areas." '189 patent, col. 14:10-15. Thus, the coordinates are references to geographical locations "in" the terrain that will be displayed and may be "longitudinal and latitudinal (x,y) coordinates." '189 patent, col. 9:36-38.

37.   It is my understanding that Skyline has suggested that coordinates "may make up a terrain." Skyline Brief at 15. Such a characterization does not make sense to one of ordinary skill in the art and is at odds with the use of the term within the specification. Coordinates may *reference* or *index* a location in the terrain, but in no sense do they "make up a terrain."

38.   It is my understanding that Skyline proposes a construction in which the

coordinates are "used to determine a position in the terrain." Skyline Brief at 14. This is not the language used in the patent, and is not consistent with how one of ordinary skill in the art would understand the claim phrase. The coordinates *directly identify* the particular location in the terrain. '189 patent, col. 4:15-18; col. 9:36-38; col. 14:10-15. They are not "any of a group of one or more numbers used [in some vague, unspecified manner] to determine a position in the terrain." Skyline Brief at 14.

"indication of a respective resolution level"

39.   It is my opinion that one of ordinary skill in the art would understand "indication of a respective resolution level" to mean "data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks." It is my understanding that Skyline has not disputed this proposed construction. Nevertheless, it is my opinion that a construction would be beneficial, as it would offer a clear meaning to this phrase, and provide necessary context for understanding the meaning and scope of the claim as a whole.

40.   The specification supports this construction. For example, "[t]he blocks at lower resolution levels include less detail per unit area, while the blocks of higher resolution levels include more detail per unit area." '189 patent, col. 3:6-9; *see also* '189 patent, col. 9:55-61. Additionally, "the renderer 72 preferably states the resolution level 44 at which the block is required." '189 patent, col. 11:27-30.

"receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level"

41.   It is my understanding that Skyline has not offered a construction of this phrase as a whole. Proposed constructions for some of the constituent phrases in this portion of the claims have already been provided above. Nevertheless, I believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning.

42.   This phrase as a whole would be understood by one of ordinary skill in the art to

mean "an object other than the renderer receiving from the renderer one or more pairs of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain, and that object at the same time also receiving from the renderer data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks."

43.   The support for this construction is found in the proposed constructions for each of the constituent phrases, as explained above. Additionally, one of ordinary skill in the art would understand that an object does not receive data from itself, thus requiring that the object receiving the coordinates and resolution level be an object other than the renderer.

"data corresponding to the one or more coordinates"

44.   It is my understanding that Skyline has not proposed a construction of this phrase. Nevertheless, I believe that the phrase should also be construed to provide the proper context, and a coherent overall meaning of the claim as a whole.

45.   This phrase as a whole would be understood by one of ordinary skill in the art to mean "data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer."

46.   This construction is supported by the language in the claims. For example, according to claim 1, the "data" is included in the "first data block." As described earlier, the data in the data block is "an image of a terrain area that is composed of pixels" and optionally "data associated with the image of the terrain area, such as data describing other objects that overlay the terrain." Additionally, the phrase refers to "*the* one or more coordinates." The presence of "the" denotes a particular antecedent reference. "[T]he one or more coordinates" in this phrase from the claim is thus referring to the "one or more coordinates in the terrain" received from the renderer, as explained above.

47.   I also find support for this construction in the specification. *See, e.g.,* '189 patent, col. 4:10-18; col. 6:1-5; col. 8:38-42.

"local memory"

48.   It is my opinion that one of ordinary skill in the art would understand this phrase to mean "a memory that is part of the local computer that is performing the steps of the recited method."

49.   The specification indicates that the local memory is part of the apparatus that is performing the method steps. *See, e.g.,* '189 patent, col. 3:25-27 ("the processor manages a local cache memory.… [T]he processor stores in the cache memory all blocks downloaded from the server."). "[T]he apparatus include[es] a local memory.… [T]he memory receives the data blocks from a remote server." '189 patent, col. 5:62-66; *see also* '189 patent, col. 15:50-51 ("all the received blocks are stored in cache memory 32 for later use"). The local memory that stores the data blocks once they have been downloaded is described as the "cache memory 32 of processor 20, for example in the main memory of processor 20." '189 patent, col. 11:40-42, 58-61.

50.   It is my understanding that Skyline has proposed that this term be construed to mean "memory of a local computer." Skyline Brief at 17. This construction is circular and is contradicted by the plain and ordinary meaning to one of skill in the art. One of ordinary skill in the art would understand that a local memory is memory that is part of the local computer.

"first data block"

51.   It is my understanding that Skyline has proposed that this term be construed to mean "a designation of a data block that may be one of a plurality of data blocks." Skyline Brief at 19. Such a construction however, completely reads out the term "first" from the claim. Skyline's construction disregards the importance of the term "first" as an ordinal indication

carrying the meaning of primacy. The claim language states that a *first* data block is provided to the renderer from a local memory. '189 patent, claim 1. According to the following steps in the claimed method, "*additional* data blocks" may thereafter be downloaded from a remote server. The term "additional" would be irrelevant and meaningless if there were no "first" data block that was already provided to the renderer. Furthermore, downloading "*additional* data blocks" from a remote server, as explained in the third step of the method, only occurs "if the provided data block from the local memory [*i.e.* the *first data block* from the previous step] is not at the indicated resolution level." *Id.* Thus, the downloading of additional data blocks depends on whether the data block first provided from the local memory is at the correct resolution level. That the data block provided from the local memory be *first* is an ordinal requirement, and not a meaningless word in the claim that should be ignored.

52.   This understanding is further supported by the specification. For example, the patent explains that "the processor *first uses the data blocks stored in the cache memory* and concurrently sends download orders for higher resolution level blocks.… [I]f the block is not carried by the cache manager, it is ordered from the server." '189 patent, col. 3:49-64 (emphasis added). Other passages from the specification similarly explain that "first data block" does not simply mean one of many, but that the data block from the local memory is provided to the renderer *first*, before other data blocks are downloaded. *See, e.g.,* '189 patent, col. 3:60-64 ("If the cache manager has the ordered block, it provides it to the rendering program. However, if the block is not carried by the cache manager, it is ordered from the server, and a replacement block from a lower resolution level is passed to the rendering program.").

53.   Accordingly, it is my opinion that one of ordinary skill in the art would understand "first data block" to mean "the data block stored in local memory that is the first data block to be provided to the renderer in response to the coordinates in the terrain and the indication of a respective resolution level received from the renderer."

"providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory"

54.   It is my understanding that Skyline has not proposed a construction of this phrase as a whole. Proposed constructions for some of the constituent phrases in this portion of the claims have already been provided above. Nevertheless, I believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning.

55.   This phrase as a whole would be understood by one of ordinary skill in the art to mean "an object other than the renderer provides to the renderer a first data block which includes data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer, this first data block being provided from a memory that is part of the local computer that is performing the steps of the recited method."

56.   The support for this construction is found in the proposed constructions for each of the constituent phrases, as explained above. Additionally, one of ordinary skill in the art would understand that an object does not provide data to itself, thus requiring that the object providing the first data block to the renderer be an object other than the renderer.

"downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level"

57.   It is my understanding that Skyline has not proposed a construction of this phrase as a whole. Proposed constructions for some of the constituent phrases in this portion of the claims have already been provided above. Nevertheless, I believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning.

58.   This phrase as a whole would be understood by one of ordinary skill in the art to mean "downloading to the local computer from a separate computer one or more additional data blocks, each having an amount of detail per unit area greater than the amount of detail per unit

area of the first data block already in the local memory, which additional data blocks include

data corresponding to the coordinates received from the renderer, based upon determination of

whether the first data block already in the local memory is not of the indicated amount of detail

per unit area received from the renderer."

59.   The support for this construction is found in the proposed constructions for each

of the constituent phrases, as explained above. Additionally, the claim language is clear that a

determination is made as to whether the first data block from the local memory is not at the

correct resolution level before downloading additional data blocks. The claim recites the

downloading step as conditional, occurring only "if the provided block from the local memory is

not at the indicated resolution level." *See, e.g.,* '189 patent, claim 1.

60.   Because there is a conditional in this element, a determination must be made in

order to ascertain whether the conditional is true. A construction that eliminated this

determination of the truth of the conditional would effectively read out the entire phrase "if the

provided block from the local memory is not at the indicated resolution level" and dramatically

alter the meaning of the claim by making the downloading step *unconditional*.

61.   This construction is also supported by the specification. For example, "[i]f the

cache manager has the ordered block, it provides it to the rendering program. However, *if the

block is not carried by the cache manager, it is ordered from the server*, and a replacement block

from a lower resolution level is passed to the rendering program." '189 patent, col. 3:60-64

(emphasis added). As a further example, "[c]ache manager 74 downloads from server 26 the

blocks 42 and/or sub-blocks 43 required by renderer 72, *if they are not already stored in cache

memory*." '189 patent, col. 11:62-65 (emphasis added). In all of these examples, the computer

must make a determination of the truth of the conditional in order to take appropriate action.

CONSTRUCTIONS THAT SKYLINE HAS NOT DISPUTED

62.   If at some future point, Skyline provides additional claim constructions or

responds to Defendants' proposed constructions for claims other than claims 1 and 12 (Exhibit B to Woo Decl.), I would like the opportunity to supplement this declaration and further respond.

I declare under penalty of perjury under the laws of the United States of America that, to the best of my knowledge, the foregoing is true and correct.

Dated: March 25, 2005

By: _____
        Steven K. Feiner